

**Abstract**

The invention relates to a novel acetylcholinesterase gene (*ace-1*) responsible for resistance to organophosphorus and/or carbamates in mosquitoes, which is non-homologous to the *D. melanogaster* acetylcholinesterase gene (*ace-2*), products of the *ace-1* gene (cDNA, protein AchE1) and the applications thereof, particularly for the screening of novel insecticides and the genetic detection of resistance to organophosphorus and/or carbamates in mosquito populations.